ASEAN Regional Road Safety Strategy

one vision
one identity
one community

The Association of Southeast Asian Nations (ASEAN) was established on 8 August 1967. The Member States are Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam.
The ASEAN Secretariat is based in Jakarta, Indonesia.

For inquiries, contact:
The ASEAN Secretariat
Community Relations Division (CRD)
70A Jalan Sisingamangaraja
Jakarta 12110
Indonesia
Phone : (62 21) 724-3372, 726-2991
Fax : (62 21) 739-8234, 724-3504
E-mail : public@asean.org

Catalogue-in-Publication Data

ASEAN Regional Road Safety Strategy
Jakarta, ASEAN Secretariat, October 2016

363.125
1. ASEAN – Public Safety Program – Strategy
2. Safety Management – Vehicles – Crash Response

ISBN 978-602-6392-14-5

ASEAN: A Community of Opportunities

With the Support of:

ADB | Japan Fund for Poverty Reduction

"The ASEAN Regional Road Safety Strategy has been produced with the support of Asian Development Bank (ADB) Technical Assistance 8075-REG: Improving Road Safety in ASEAN, financed by the Japan Fund for Poverty Reduction.

The findings, interpretations and conclusions expressed in this publication do not necessarily reflect the views of ASEAN or its Member States, the ADB, its Board of Governors, or the governments they represent.

ASEAN or the ADB does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use. ASEAN or the ADB shall not be held liable for any omissions or inaccuracies in the content of this publication."

The text of this publication may be freely quoted or reprinted, provided proper acknowledgement is given and a copy containing the reprinted material is sent to the Community Relations Division (CRD) of the ASEAN Secretariat, Jakarta.

General information on ASEAN appears online at the ASEAN Website: www.asean.org

Copyright Association of Southeast Asian Nations (ASEAN) 2016.
All rights reserved.

ASEAN Regional Road Safety Strategy

The ASEAN Secretariat
Jakarta

Table of Contents

1. Introduction and Context 1

1.1. Road safety in the global context 1

1.2. Road safety in the ASEAN context 2

1.3. Roles and responsibilities in the regional road safety strategy 5

2. Road Safety Context and Issues in ASEAN Countries 7

2.1. Brunei Darussalam 7

2.2. Cambodia 10

2.3. Indonesia 12

2.4. Lao People's Democratic Republic 16

2.5. Malaysia 19

2.6. Myanmar 21

2.7. Philippines 23

2.8. Singapore 25

2.9. Thailand 27

2.10. Viet Nam 29

3. Country Progress in Terms of the Five Pillars of Road Safety 31

4. General structure of the ASEAN Regional Road Safety Strategy 35

4.1. Road safety management 35

4.2. Safer roads and mobility 37

4.3. Safer vehicles 38

4.4. Safer road users 39

4.5. Post-crash response 40

5. References 42

6. Appendices 43

6.1. A proposed index of road safety maturity (RSM) 43

Addendum

The ASEAN Regional Road Safety Strategy was officially adopted on 6 November 2015 at the 21st ASEAN Transport Ministers Meeting. This update includes necessary amendments following to the publication of the World Health Organization (WHO) 2015 Global Status Report on Road Safety and statistical updates supplied by individual ASEAN Member States.

Abbreviations

ADB	Asian Development Bank
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
ASNet	Association of Southeast Asian Nations Safety Network
ATM	Association of Southeast Asian Nations Transport Ministers Meeting
BAC	Blood Alcohol Concentration
GRSP	Global Road Safety Partnership
iRAP	International Road Assessment Program
LTWG	ASEAN Land Transport Working Group
MRSSWG	ASEAN Multi-sector Road Safety Special Working Group
NRSC	National Road Safety Council or Committee
PPP	Gross Domestic Product Per Person
RSE	road safety education
RSWG	Road Safety Working Group
SDG	Sustainable Development Goals
STOM	Senior Transport Officials Meeting
UNDoA	United Nations Decade of Action on Road Safety
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USD	United States Dollars
VRU	vulnerable road user (pedestrian, bicyclist, motorcyclist)
WHO	World Health Organisation

1. Introduction and Context

In 2011, it was estimated that more than 75,000 people died in road crashes in ASEAN countries and many more sustained long term injuries. Improving road safety outcomes in ASEAN is not only important for the welfare and economic benefit of the populations of these countries, but given the proportion of the world's population that lives in ASEAN, it will strongly influence whether the aims of the United Nations Decade of Action for Road Safety and the Sustainable Development Goals are reached.

Each one of the ASEAN countries has reached different levels of maturity in its response to road trauma. The Decade of Action for Road Safety has proposed 5 pillars of road safety which provide a useful framework for road safety strategies at the global, regional and national levels: road safety management, safer road and mobility, safer vehicles, safer road users and post-crash response. There has also been a realisation that, within this overall framework, there are particular actions that are best suited to implementation at the global, regional and national levels. **It is proposed that the key Strategic Directions for the ASEAN Regional Road Safety Strategy should focus on those aspects which are most relevant at the regional level and where a regional approach will support and facilitate actions taken by individual countries.**

1.1. Road safety in the global context

Road trauma has incredible impact on the health and economic growth of all nations. The United Nations has recognised the importance of dealing with this problem by announcing 2011-2020 as the Decade of Action for Road Safety. The goal of the Decade of Action is to stabilize and then reduce the forecast level of road traffic fatalities around the world by 2020 increasing activities conducted at the national, regional and global levels.

More recently, the United Nations Summit on Sustainable Development adopted the new Sustainable Development Agenda in September 2015. Among the 17 goals, 2 specifically relate to road safety. Under Goal 3: Ensure healthy lives and promote well-being for all at all ages, Target 3.6 is to **"By 2020, halve the number of global deaths and injuries from road traffic accidents".** Under Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable, Target 11.2 is to **"By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons".** These goals provide an important focus and impetus for the ASEAN Regional Road Safety Strategy.

1.2. Road safety in the ASEAN context

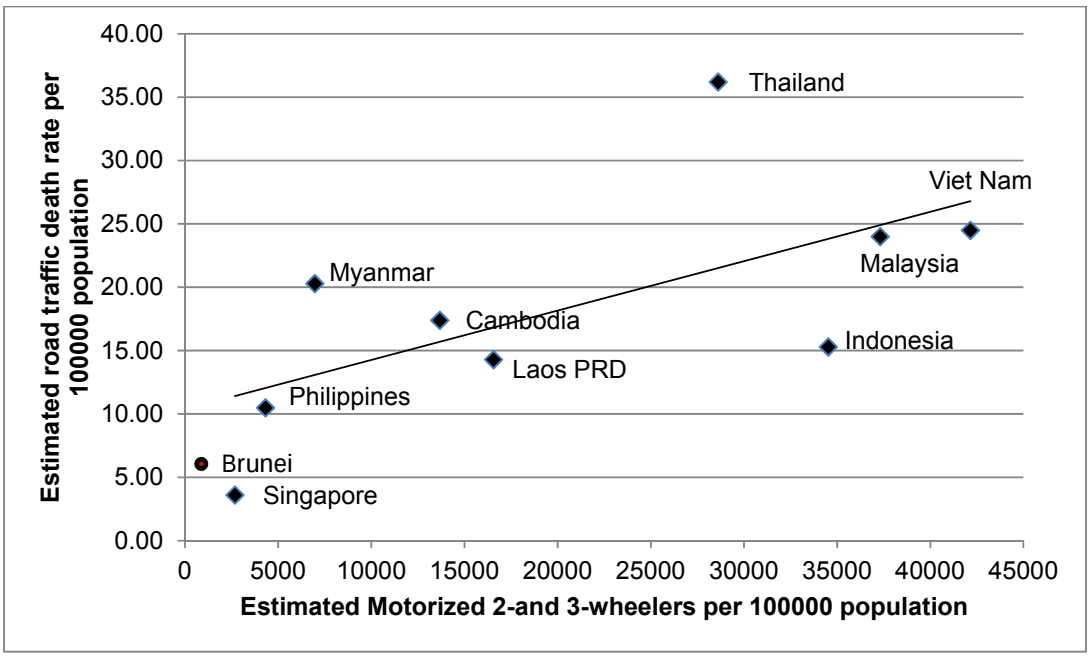
The diversity among the ASEAN nations is evident also in road safety outcomes. The road fatality rate per 100,000 population in Malaysia and Thailand is about 5 times greater than in Singapore. The Singaporean road fatality rate in (3.6) is similar to that of the world's best performing nations (Netherlands (3.4) and the United Kingdom (2.9)). The WHO 2013 Global Status Report on Road Safety has identified that road trauma is generally higher in middle income countries and still increasing – this is also true in ASEAN. Low income countries (such as Myanmar and Cambodia) generally have lower rates of motorization and so lower fatality rates expressed in terms of population (although the per vehicle rates can be extreme). Unless strong action is taken, economic development in these countries will be accompanied by increasing deaths and injuries on their roads.

Fatalities per 100,000 population	Low income	Middle income	High income
Low (<10)			Brunei Singapore
Medium (10-15)		Philippines Lao PDR	
High (>15)	Cambodia Myanmar	Indonesia Malaysia Thailand Viet Nam	

** Information in this table is sourced from road traffic fatality data (2013) from WHO 2015 Global Status Report on Road Safety and the World Bank.*

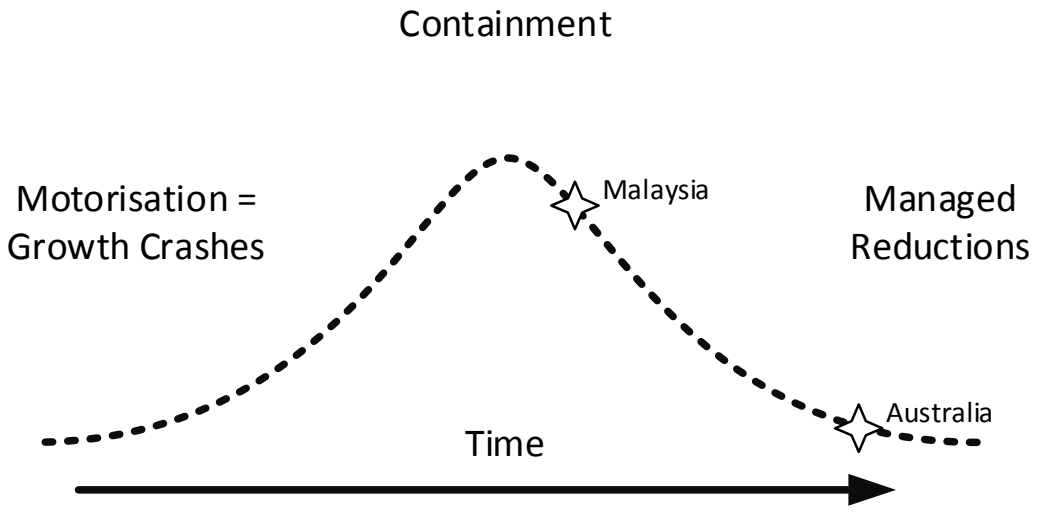
Source: Road traffic fatality data (2013) from WHO 2015 Global Status Report on Road Safety. Brunei Darussalam's road traffic fatality rate per 100,000 population in 2014 is 5.8 (based on Brunei Darussalam's submission of information).

Across ASEAN the motorization rates (including 2- and 3-wheelers) are high in Malaysia but low in Myanmar, Lao PDR and the Philippines. Motorized 2- and 3-wheelers comprise the majority of vehicles in most ASEAN countries and this is unlikely to change because of their advantages in congested cities. Yet reliance on these vehicles is associated with higher road fatality rates as shown in the chart below. The pattern of use of these vehicles – often as family transport – makes it even more imperative that the road safety strategy should focus on addressing the vulnerability of users to road trauma.



Brunei Darussalam's road traffic fatality rate per 100,000 population in 2014 is 5.8 (based on Brunei Darussalam's submission of information)

The rapid pace of change in some ASEAN countries means that the Regional Road Safety Strategy needs to focus on future issues, as well as the current situation. **For some countries increasing motorization may mean that the challenge is to reduce the likely future increase in road trauma, rather than attempting to achieve absolute reductions.**



The importance of particular road safety issues varies across the ASEAN countries. The best approach to dealing with this challenge may be to have a set of priority issues in the regional road safety strategy (e.g. non-use of helmets, drink driving etc.) and acknowledge that the order of importance of these issues will vary among countries. It is possible that

for countries which are undergoing rapid motorization, the order of importance may change over the life of the strategy.

As shown in the table earlier in this document, income levels vary among ASEAN countries. Some higher-cost initiatives may be relevant for only a subset of ASEAN countries at the moment and the focus for the remaining countries may need to be on lower-cost solutions. For some initiatives, it may be possible to develop lower-cost alternatives (as has occurred for motorcycle helmets). In addition, disparate income levels exist within countries. It is important to consider whether some road safety initiatives may lead to loss of income or access to resources by the poor and disadvantaged. For example, banning or restricting the use of unsafe means of transportation which are mainly used by the poor may hamper their access to employment or education. There may be a need for a poverty impact analysis for new road safety programmes.

1.3. Roles and responsibilities in the regional road safety strategy

The previous ASEAN regional road safety strategy (RRSS) and action plan entitled "Arrive Alive: ASEAN commits to cutting road deaths" covered the period 2005-2010. It was agreed that the strategy and action plan should be monitored by the Senior Transport Officials and the ASEAN Transport Ministers. To facilitate this process, the Multi-sector Road Safety Special Working Group (MRSSWG) was established with representation from all ASEAN countries to coordinate activities at regional level and to report regularly to the Senior Transport Officials Meeting (STOM) through the Land Transport Working Group (LTWG) on progress regarding the implementation of the country and regional road safety plans.

The MRSSWG is charged with the responsibility to mobilise and deliver the new RRSS through ASEAN. However, it is important to appreciate that the MRSSWG is a group that has limited jurisdictional delegation, no budgetary consideration and meets only once per year. It will therefore become increasingly important that these limitations be noted when considering the implementation of this strategy. It may be appropriate to review the scope of the MRSSWG terms of reference.

Since the launch of the previous regional strategy, the road safety and motorization contexts in many of the ASEAN countries have changed and new approaches to improving road safety have been introduced, spurred on by the announcement of the UN Decade of Action for Road Safety. The UNDoA has proposed 5 pillars of road safety which provide a useful framework for road safety strategies at the global, regional and national levels: road safety management, safer road and mobility, safer vehicles, safer road users and post-crash response. There has also been a realisation that, within this overall framework, there are particular actions that are best suited to implementation at the global, regional and national levels.

It is proposed that the key Strategic Directions for the ASEAN Regional Road Safety Strategy should focus on those aspects which are most relevant at the regional level and where a regional approach can be more useful than an individual country approach. These aspects have been identified as:

1. Harmonisation of standards, road rules and legislation
2. Capacity building
3. Knowledge development through research and evaluation
4. Monitoring and reporting progress.

ASEAN is unique sub region, with some countries belonging to other organisations such as the Asia Pacific Economic Forum (APEC), and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP). Given the diversity of ASEAN member nations, the next section of this document summarises the road safety context and challenges in each of the countries as a background to the RRSS which is outlined later.

2. Road Safety Context and Issues in ASEAN Countries

This section summarizes the road safety context and issues for each of the ASEAN nations. Whilst most of the information is derived from the World Health Organization Global Status Report on Road Safety 2015, other data from each ASEAN Member State were also provided. For each country, the road safety challenges are summarised in a text box at the beginning of their respective sections. A description of the geography, demographics, road fatality patterns and institutional capacity for road safety in that country is then provided.

2.1. Brunei Darussalam

Challenges

- Strengthening the technical-scientific expertise in road safety.
- Development of a comprehensive national road accident database.
- Strengthening enforcement on usage of mobile phones while driving and other offences that require full-time surveillance systems.
- Provision of infrastructure and facilities for pedestrian and cyclists.
- Provision of regulated, efficient and integrated public transportation systems.

Brunei is a small country with high income per capita, a high human development index[1] and economic stability. Its population is the smallest in the Southeast Asia region with 399,800 inhabitants recorded in 2012 (Brunei Statistical Yearbook 2013); approximately 411,900 in 2014. It is a predominantly urban nation where a majority of the population live in cities. Brunei's economy has among the highest GDP per capita (PPP) in the ASEAN region of USD$76,753.6 (2010-2014) (World Bank) and an average unemployment rate of 4.7% from 1995 to 2014 (9.3% in 2011 and 6.9% in 2014). Located on the northern coast of the island of Borneo in Southeast Asia, the country comprises 5,765 sq. km of land with topographic

[1] The Human Development Index (HDI) is a summary measure of average achievement in key dimensions of human development: a long and healthy life, being knowledgeable and have a decent standard of living. http://hdr.undp.org/en/content/human-development-index-hdi

features of lowland, flat coast deltas and mountains. Brunei, located in the tropical zone, is hot and humid all year round with two seasons - the rainy (or monsoon) and dry season.

Brunei has the shortest road network in the Southeast Asian region with 3,127 km of road length (Land Transport Masterplan 2014). About 93 per cent of roads in Brunei are paved with quality meeting international standards. Brunei's motorisation rate is recorded at about 712 motor vehicles per 1,000 population (based on 285,000 licensed vehicles recorded in 2014) and has about 91 motor vehicles per kilometre of road (2014). Brunei has 677 passenger cars (defined as road motor vehicles, other than two-wheelers, intended for the carriage of passengers and designed to seat no more than nine people) per 1,000 population (2014).

For the years 2011 to 2015, traffic fatalities recorded were respectively 47, 28, 32, 24 and 36 and over 75 per cent were males. The Brunei Road Safety Action Plan (2005-2010) showed that the vast majority of reported crashes in 2003 involved cars with very few other vehicle types involved. The total cost of traffic crashes during that particular period was estimated at approximately BND $79 million which is about 0.96% of total GDP. Although this was just an estimation, the cost amount has provided a platform and guideline to the country's investment both at Government and Non-Government levels in its continuous efforts to reduce fatalities and injuries due to road crashes. In post-crash care, Brunei continues to benefit from trained emergency medical staff and availability of systems for vital registration. The number of ambulances and emergency vehicles is being increased in stages annually as part of Brunei's strategy to enhance the Rapid Response Time to road crash sites and for post-crash periods.

The institutional capacity for road safety features the Brunei National Road Safety Council (BNRSC), led by the Ministry of Communications. The BNRSC comprises of multi-agencies including the Land Transport Department, Royal Brunei Police Force, Road Department of the Ministry of Development, Ministry of Health, Fire Brigade & Rescue Department, Ministry of Education, representatives from the Private Sector, Non-Government Organisations and other relevant stakeholders. In February 2011, Brunei launched its Blueprint Decade of Action for Road Safety 2011-2020 together with the establishment of the Road Safety Research Centre in collaboration with the Institute of Technology Brunei (ITB); now known as the Centre for Transport Research (CfTR) of the University of Technology Brunei (UTB). In its continuous and concerted efforts to strengthen its road safety strategy, with 2010 as its baseline, Brunei aims to achieve a reduction of 35%

in fatality rates by 2020 (i.e: 4 fatalities per 100,000 population), 60% reduction in victims killed or seriously injured (KSI) by 2025, 35% reduction in slight casualties by 2025 and 70% reduction in children Killed or seriously injured (KSI) by 2025.

The country benefits from a regulatory framework comprising of formal safety audits for road construction, and continuous implementation of programmes that lead to regular inspections of existing roads. The country has and will continue to consider effective ways to promote walking and cycling and the protection of Vulnerable Road Users. In 2014, from a total of about 285,000 licensed vehicles recorded, 95% were privately-owned vehicles and 5% comprised other types including commercial vehicles and buses. The country has also adopted the UNECE World Forum for Harmonization of Vehicle Regulations (WP.29) to establish regulatory instruments concerning motor vehicles and motor vehicle equipment. Moreover, in its effort to enhance the quality of vehicles imported into the country, Brunei has implemented a mandatory minimum vehicle safety feature requirements (4 features comprises 2 Airbags for driver and front passenger, seatbelt with pre-tensioner and force limiter and warning sign, head rest for all seats and Antilock Braking Systems) for importation of new and second hand private vehicles effective from 31st March 2016. The roadmap for an upgrade to these safety features and towards introduction of a new car assessment program (NCAP) has been discussed with car dealers and relevant stakeholders for the next few years to come. In its newly launched National Land Transport Master Plan 2014, Brunei has already taken measures and steps to improve and develop its existing public transportation system with the injection of some investments towards regulated and efficient services.

In Brunei, the behaviour of users in the traffic system is well regulated. Speed limits in Brunei are established nationally with a maximum speed limit in city road driving set at 50 km/h and further reduction by means of traffic calming measures on residential roads. Maximum speed limits for Highways and Primary Roads are set at 100km/h and 80km/h respectively and for Secondary roads at 65km/h. These speed limits are currently under review with possible reductions in the future. This country has a strong national motorcycle helmet law covering passenger use and helmet standards. Likewise, there are national laws on child restraints and hand-held mobile phone usage. To ensure drivers are more disciplined, careful and compliant of road rules and regulations, Brunei introduced a Demerit point system known as “SiKAP” (“**Si**stem **K**eselamatan **A**malan **P**emandu”). Since its full implementation on 1st October 2013 and along with initiatives by other relevant agencies, the number of road

fatalities dropped by 25% in 2014 from the previous year with a 35% and 12% decrease in Serious and Minor injuries respectively.

Although there are challenges ahead which include an increase of 50% in the number of fatalities in 2015 from the previous year, Brunei Darussalam will continue efforts to achieve a Safer System through the "5E" thrusts (Enforcement, Engineering, Emergency, Education and Environment) stated in its Decade of Action for Road Safety 2011-2020. The journey towards safer mobility and safety on the road demonstrates Brunei's continuous commitment through the Psychological, Technological & Integrated Approach towards Road Traffic Injury Accident Reduction on Brunei Roads. As for road safety education, numerous and continuous campaigns and initiatives have been and continue to be conducted with strong support from relevant stakeholders, the private sector and NGOs. One recent initiative was the launching of a book entitled *'Safe and Smart Driving in Brunei Darussalam',* published in the first quarter of 2015, intended to facilitate and inculcate safer and efficient driving behaviour for all road-users in the country.

2.2. Cambodia

Challenges

- Improving the safety of 2- or 3- wheeler drivers and passengers.
- Strengthening the enforcement of all traffic laws, especially in relation to speeding, drink driving and motorcyclist helmets.
- Consolidating national vehicle regulations
- Establishing road safety auditing of existing and new infrastructure.

Cambodia is a medium size low income country with a medium human development index and economic stability. About 80 per cent of its 15,184,116 population live in rural areas. Cambodia's economy ranks tenth in the ASEAN region with a GDP – per capita (PPP) of $3,093(2015) and unemployment rate of 0.3 per cent (2014 est.). Located in the southern portion of the Indochina Peninsula, the country has 181,035 sq. km of land with topographic features of lowland, plains and mountains. Located in the tropical zone, Cambodia is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season.

Cambodia has a road network of 53,711 km and a density of 54 km. of road per 100 sq. km of land area. Only 11 per cent of roads in Cambodia are paved, one of the lowest averages in ASEAN. No official information about expressways is available. In general, the roads are considered moderately extensive and efficient by international standards. Cambodia's vehicle fleet reaches 20 motor vehicles per 1,000 inhabitants and 6 motor vehicles per kilometre of road (2014 est.). The country has 2 passenger cars per 1,000 inhabitants are (2014 est.).

The road traffic fatalities in Cambodia were 2,231(2015 est.) representing a cost of 337 million USD in 2013. Since 2008 the traffic deaths in Cambodia have shown an upward trend and comprise males predominantly (80 per cent). It is estimated that the number of fatalities doubled from 2005 to 2015. The largest group of road users killed was riders of motorized 2 (71 per cent), followed by pedestrians (10 per cent) and drivers and passengers of cars and light vehicles (8 per cent). In post-crash care, Cambodia continues to benefit from trained emergency medicine staff and availability of systems for vital registration. On the other hand, less than 50 per cent of serious injured people are transported by emergency ambulances.

The institutional capacity for road safety in Cambodia includes a lead national agency and a strategy funded partially in the national budget. In addition, the country benefits from a regulatory framework for formal safety audits for road constructions, and programmes of regular inspections to existing roads. Nevertheless, Cambodia could take measures at national level to promote investment in public transportation and protect VRUs while its vehicle fleet increases gradually.

The vehicle fleet in Cambodia comprises 3,200,320 units, most of which are motorized 2 wheelers (85 per cent), followed by cars and 4-wheeled light vehicles (14 per cent), heavy trucks (2 per cent) and buses (0.2 per cent) (2015). The country has not adopted the UN World Forum on Harmonization of Vehicle Standards; however, the Global Status Report shows that Cambodia has a new car assessment programme for verifying compliance with vehicle standards. Moreover, all new and imported cars require front and rear seat-belts.

In Cambodia, the behaviour of road users is to some extent regulated. Speed limits in Cambodia are established nationally with a maximum speed of 40 km/h in urban areas, and local authorities cannot set lower speed limits zones. The national drink driving law has the same BAC limit (0.05 g/dl) for all the population groups regardless of their experience or being

commercial drivers. The last point is particularly problematic in Cambodia given that it has the second largest proportion of young people in the ASEAN region. The fatality toll for drink driving related crashes is estimated at 17 per cent. In January 2015, the country introduced a comprehensive national motorcycle helmet law covering drivers and passengers. Likewise, there are national laws on child restraint and hands-held mobile phone usage. In addition, there is a penalty/demerit point system for driver licences. On the downside, the national seat-belt law does not apply equally for front and rear seat occupants in urban areas. Notable weaknesses include the enforcement of the national drink driving-driving law and motorist helmet law. Yet, other laws are moderately enforced and greater efforts are needed to achieve the goals.

Finally, little research has been carried out on road safety and few authors affiliated to Cambodia's institutions were found. This is comparable with countries such as Philippines, Laos and Myanmar. Major investment is required to increase scientific and technical human capital to approach Cambodia's road safety challenges.

2.3. Indonesia

Challenges

- Strengthening the lead agency in road safety at the provincial level.
- Implementing regulations for vehicle standards.
- Implementing regulations for child restraints
- Implementing regulations on BAC limits.
- Implementing the enforcement of speed limits.
- Improving the enforcement of both front and rear seat belt usage.
- Strengthening the technical-scientific workforce to assume roles in road safety.
- Developing policy and strategy to address motorcycle safety

Indonesia is the largest and most populous country in Southeast Asia. The nation has the largest gross economy among the ASEAN countries and it is classified as a middle income country with medium human development score. Its population is about 253,609,643 inhabitants and 52 per cent live in urban areas. Indonesia's economy ranks fifth in the ASEAN region with a GDP – per capita (PPP) of $9,561 (2013) and unemployment rate of 6.3 per cent (2010-2014 est.). Surrounded by the Indian Ocean, the country is made up of many islands

with 1,811.569 sq. km of land with topographic features of lowland and mountains. Located in the tropical zone, Indonesia is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season.

In 2015, Indonesia had a road network of 503,604 km of which 89.7% was paved. Indonesia has 976 kilometres of expressways. In general, the roads are considered moderately extensive and efficient by international standards. Indonesia has 451 motor vehicles per 1,000 inhabitants and 235 motor vehicles per kilometre of road (2014 est.). The country has 47 passenger cars per 1,000 inhabitants are (2014 est.).

There were 28,297 (2014 est.) road traffic fatalities in Indonesia representing 3.0 per cent of GDP loss. Since 2005 traffic deaths in Indonesia have shown an upward trend with males predominating (78 per cent). The road user groups most represented in road traffic deaths were riders of motorized 2- or 3-wheeled (36 per cent), drivers/passengers buses (35 per cent) and pedestrians (21 per cent). Indonesia continues to gain benefit from trained emergency medicine staff and is delivering community training (non-health providers) in life support for first-responders. Call centres for pre-hospital emergency medical services have been established in four provinces. In the future, Indonesia could do more to extend the availability of systems for vital registration and new technologies for injury based surveillance systems in emergency rooms.

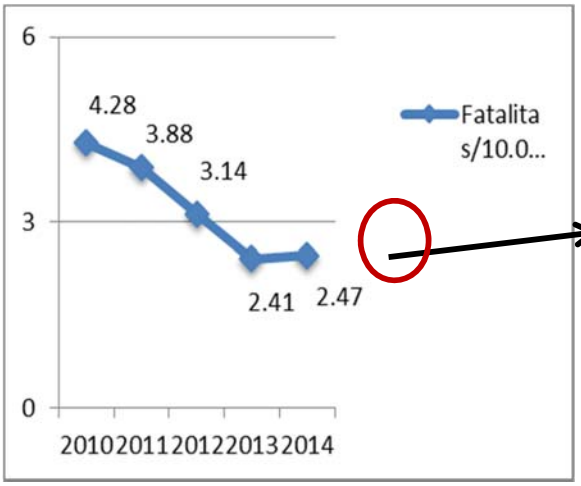
In 2014-2015, Indonesia has consistently conducted various road safety programmes and introduced new programmes including provision of medical examinations for professional drivers at bus stations in 65 districts/cities and road safety education for students and community. Those programmes have significantly contributed to the improvement of road safety in Indonesia.

In 2015, the road traffic fatality rate in Indonesia was 2.54 per 10,000 vehicles, lower than the Road Safety National Plan target of 3.14 for 2011-2015. While the number of road traffic accidents resulting in serious or minor injuries increased from 95,601 in 2014 to 98,970 in 2015; the number of fatalities decreased 6.3 percent from 28,297 to 26,495.

One of the main considerations for determining the priority of road safety programmes is the results of analysis of crash data. For example, Indonesian National Police data for 2014 shows that 71 per cent of traffic accidents in Indonesia involved motorcycles (108,883 cases). The main contributor to accidents is identified as the road user (driver/human error) in 90 per cent of instances. Overall, 72 per cent of traffic accidents

occurred on local roads such as Province, Regency, and City Roads. Therefore, road safety programmes should focus on issues relevant to those roads.

Achievement of Index Fatality per 10.000 vehicles 2010-2014 and RUNK's Target



Fatality reduction targets

Periode	Sasaran	Indeks fatalitas per 10.000 kendaraan
2010 (*baseline*)	0%	3,93
2011 - 2015	20%	3,14
2016 - 2020	50%	1,96
2021 - 2025	65%	1,37
2026 - 2030	75%	0,98
2031 - 2035	80%	0,79

Source : Ministry of National Development Planning

In order to reach the Road Safety National Plan target, Government of Indonesia has carried out road safety programmes through several key stakeholders. For instances, Ministry of National Development Planning/Bappenas has included road safety in the National Medium Term Development Plan 2015-2019 in order to strengthen the coordination between Central and Local Government and international market competitiveness. Moreover, road safety aspects are being implemented in the Government Annual Plan 2015 by key stakeholders. A Special Allocation Fund had been transferred to Local Government in the Government Annual Plan 2014 for 235 Billion to 438 Regencies/Cities and 30 Provinces and for 254.8 Billion for 422 Regencies/Cities and 28 Provinces.

By 2015, the Ministry of Public Work and Public Housing had implemented the safer road programmes such as audits programmes to all stages of road construction, inspections to existing roads, blackspot investigations programme, and road worthiness assessment for both new and existing roads. By the end of 2015, road safety audits and inspections had been conducted in 95 locations for 3195 road segments. In addition, until 2014 an inventory of accident-prone locations has been undertaken in 344 locations, of which 40 locations were improved in 2014 and 68 locations are being improved throughout 2015.

The Ministry of Transportation has issued a Ministry Regulation regarding speed limits and is working toward the issuance of Ministry Regulations regarding abolition of vehicle

scrapping and safety management system on public transport entities. Moreover, the Ministry of Transportation has undertaken the Integrated Urban Road Safety Program (IURSP) which aims to improve the safety of roads on a regional basis as a pilot project in several cities such as Bali, Bandung, Medan, and Pekanbaru. These pilot projects are designed to improve safety in urban transport based on national standard.

The Indonesian National Police has coordinated with key stakeholders in order to socialise and establish the enforcement of road user compliance in terms of helmets, safety belts, and child occupant protection. Throughout 2014, the Indonesian National Police has issued certificates of competency to over 520 driving-licence examiners. Moreover, the Indonesia National Polices had coordinated with the Ministry of Education and Culture to include road safety education into the curriculum for primary and secondary schools.

The Ministry of Health promoted pre-crash treatment in Bengkulu and West Sumatera in 2014. Moreover, health checking on the driver in special circumstances has been undertaken for 3848 bus drivers particularly during Lebaran, Christmas, and New Year. In addition, the Ministry of Health has developed a web-based system for reporting and checking drivers.

The National Development Planning Agency acts as the national lead agency for road safety at the central government level. The lead agency at the provincial level and the city/ regency is appointed through the Road Traffic Transport Forum. The national road safety strategy is funded partially in the national budget toward the 50% reduction target for fatalities. The country benefits from a regulatory framework for formal road safety audit programmes at all stages of road construction (from design to road operational stages), road safety inspections to existing roads, blackspot investigations programme, and also functional road worthiness assessments for both new and existing roads. Finally, Indonesia has national policies to encourage investment in public transport, walking and cycling.

The vehicle fleet in Indonesia comprised 104,211,132 units in 2013. In terms of vehicle type, the largest proportion is motorized 2- and 3-wheelers (82.76 per cent), followed by cars and 4-wheeled light vehicles (10.40 per cent), heavy trucks (4.94 per cent) and buses (1.88 per cent). The number of registered motor vehicles rose 278% between 2005 and 2012. A number of items in UN Regulation on Vehicles Standards have been harmonized into the related regulations in Indonesia. The country requires seat belts to be installed for driver and

front passengers for all cars (Traffic and Transport Law no. 22/2009 clause 57 article (3) and (4); Government Regulation no. 55/2012 clause 46 article (1) and (2)).

In Indonesia, road users' behaviour is to some extent regulated. Speed limits in Indonesia are established nationally with a maximum speed of 60 km/h in urban areas, and local authorities can set lower speed limits zones. The national drink driving law (Traffic and Transport Law no. 22/2009 clause 106 (1)) does not define a proscribed BAC level. In the field, Indonesia recommends a BAC level of zero for public bus drivers as a health indicator for feasibility to drive. The country is currently in the process of drafting regulations for the restriction of alcohol consumption when driving. The fatality toll for drink driving is unknown. The nation has a strong national motorcycle helmet law covering helmet standards and usage by drivers and passengers. A related area of concern is that the seat-belt law does not include all passengers, but the country has regulated the minimum seat belt installation (for driver and front passengers) for all cars. Likewise, hands-held mobile phone usage is fully regulated for hands-free and hands-held devices. However, there are no national regulations on child restraint and penalty/demerit point system for driver licences approval. Notable weaknesses include the enforcement of the national speed limits and the helmet wearing rate of passengers (52 per cent) remains worrisome. So far, the motorcycle helmet law and the national seat-belt law are strictly enforced.

Finally, little research carried out on road safety and few authors affiliated to Indonesia's institutions were found. This is comparable with countries such as Thailand. Major investment is needed to increase scientific and technical human capital to approach road safety challenges.

2.4. Lao People's Democratic Republic

Challenges

- Improving post-care attention capability, in terms of emergency training nurses, access to vital registration systems and ambulances.
- Normalization of vehicle and helmet standards.
- Enhancing enforcement of the national drink driving and seat-belt laws.
- Implementation of a penalty/demerit point system for drivers.

Lao People's Democratic Republic is a middle income landlocked country with a medium human development score. Its population of about 6,492,400 (2015) inhabitants live predominantly (64 per cent) in urban areas. Lao PDR's economy ranks eighth in the ASEAN region with a GDP – per capita (PPP) of $1,725(2014) and unemployment rate of 1.4 per cent (2010-2014 est.). The country has 236,800 sq. km of land with topographic features of highland and mountains. Located in the tropical zone, Lao PDR is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season.

In 2015, Lao PDR has a road network of 56,331 km and a density of 18.56 km of road per 100 sq. km of land area; but only 17.76 per cent (10,002 km.) of roads in Lao PDR are paved. No official information about expressways is available. In general, the roads are considered moderately extensive and efficient by international standards. The road traffic fatalities in Lao PDR were 995 (2015) representing 2.7 per cent of GDP loss. Since 2005 the traffic deaths in Lao PDR has showed an upward trend. The road user group more affected by road traffic deaths was riders motorized 2- or 3-wheeled (77 per cent), followed by occupants of 4-wheeled cars and light vehicles (20 per cent) and pedestrians (6 per cent). In post-crash care, Lao PDR continues to benefit from trained emergency doctors but not nurses and there is no system for vital registration. On the other hand, less of the 10 per cent of serious injured people are transported by emergency ambulances.

In terms of institutional capacity for road safety, Lao has a lead national agency and a strategy funded partially in the national budget. In addition, the country benefits from a regulatory framework for formal safety audits for road constructions, and partial regular inspections to some parts of network. Nevertheless, Lao PDR needs to take measures at national level to protect VRUs while its vehicle fleet increases gradually.

There were 1,717,504 registered vehicles in Lao PDR in 2015, composed mostly of motorized 2- and 3-wheelers (77 per cent), followed by cars and 4-wheeled light vehicles (20 per cent), heavy trucks (3 per cent) and buses (0.25 per cent). The country has not adopted the UN World Forum on Normalization of Vehicle Standards and there is no new car assessment programme for verifying standards compliance. It is important to note that the country requires the inclusion of front and rear seat-belts.

In Lao PDR, road users' behaviour is to some extent regulated. Speed limits in Lao PDR are established nationally with a maximum speed of 40 km/h in urban areas, local authorities cannot set lower speed limits zones. The Revised Traffic law has 3 classifications for Blood

Alcohol Concentration (BAC) limit for the drivers, namely: 0.05 g/dl for car driver, zero tolerance for commercial vehicle driver (0.00 g/dl) and 0.03 g/dl for two-three wheeler driver. Likewise, the nation has a national motorcycle helmet law covering all the occupants; however there are no helmet standards and requirement to be fastened. The country seat-belt law is not comprehensive for the seat occupants and there are no national regulations on child restraints. A positive aspect is that the use of hands-held and hand-free mobile phone is prohibited while driving. There is not a penalty/demerit point system for driver licences, this is particularly important if it is considered that Lao has the largest proportion of young people in the ASEAN region. Notable weaknesses include the enforcement of the seat-belt and national drink driving-driving law, particularly; Lao PDR continues to suffer from the highest fatality toll for drink driving related accidents (50 per cent) in the ASEAN region.

Finally, research carried out on road safety is virtually inexistent and few authors affiliated to Lao's PDR institutions were found. Major investment is needed to improve scientific and technical human capital to face Lao's road safety challenges.

2.5. Malaysia

Challenges

- Enhancing the enforcement of the national laws regulating road user behaviour.
- Agreeing on whether to introduce national regulations on child restraints.
- Increasing the wearing rate of seat belts, particularly in rear seats.
- Increasing the wearing rate of safety helmets especially in rural and residential areas.
- Effective implementation of Road Safety Education in schools.
- Introducing the new driving curriculum.
- Adopting new approach to driver education, driver licensing by focusing on exposure control and specific skill enhancement to reduce the risk of accident involvement and casualties
- Enforcing the safety management system of commercial vehicle operators through the Safety Star Grading initiative
- Adopting ISO 39001 – Road Traffic Safety (RTS) Management Systems
- Improving coordination and strategic focus of stakeholders in the delivery of road safety programmes.
- Road infrastructure risks occur during the stages of planning, designing, construction, operations and maintenance. Thus, critical issues involve poor road maintenance, traffic segregation for vulnerable road users and upgrading 1 and 2 star roads according to iRAP's star rating.
- The creation of a road safety culture within the community, to bring about better perception of risks and safety compliance rates.

Malaysia is a middle income country with a medium human development score in the South East Asia region. Its population is about 30,073,353 inhabitants of whom 73 per cent live in urban areas. Malaysia's economy ranks third in the ASEAN region with a GDP – per capita (PPP) of $23,338 (2013) and unemployment rate of 3.2 per cent (2010-2014 est.). The country has 328,657 sq. km of land with topographic features of low coast deltas and mountains. Located in the tropical zone, Malaysia is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season.

Malaysia has a road network of 144,403 km (not including local roads) and a density of 47 km. of roads per 100 sq. km of land area. Of these, 80.9 per cent (2007 est.) are paved. Malaysia has 1821 km of expressways. In general, the roads are considered highly extensive and efficient by international standards. Malaysia has 378 motor vehicles per 1,000 inhabitants and 70 motor vehicles per kilometre of road (2011 est.). The country has 341 passenger cars per 1,000 inhabitants (2011 est.).

The road traffic fatalities in Malaysia were 6,674 (2014) representing 1.6 per cent of GDP lost. Since 2002 the traffic deaths in Malaysia have showed an upward trend with males predominating (81 per cent). The road user group most affected by road traffic deaths was riders of motorized 2- or 3-wheeled (59 per cent), followed by drivers of 4-wheeled cars and light vehicle (15 per cent), passengers of 4-wheeled cars and light vehicles (11 per cent) and pedestrians (9 per cent). In post-crash care, Malaysia has a trained emergency medicine staff and $\geq$ 75 per cent of seriously injured people are transported by emergency ambulances, which is a relatively high rate for regional standards.

The institutional capacity for road safety includes a lead national agency and a strategy funded partially in the national budget. The Ministry of Transport has proposed the establishment of a Malaysian Transport Safety Board. In addition, there was also a plan to develop new laboratory capacity for road safety. The country has a fairly complete regulatory framework for formal safety audits for road constructions, and a partially implemented programme of regular inspections to existing roads. The country has subnational policies to promote cycling as a mode of transport, especially in urban areas and encourages investment in public transport. Policies to improve rail transport including the use of high speed trains are being implemented.

The vehicle fleet in Malaysia comprises 20,188,565 units with a composition of motorized 2- and 3-wheelers (46.8 per cent) and followed by cars and 4-wheeled light vehicles (45.1 per cent), heavy trucks (4.8 per cent), buses (0.3 per cent), and other (3.0 per cent). The country follows the UN World Forum on Harmonization of Vehicle Standards, has a new car assessment programme for verifying compliance with vehicle standards, and implements the NCAP star rating for Malaysian produced cars. Malaysia regulates the inclusion of front and rear seat-belts. With respect to standards development, Malaysia plays an important role in the establishment of international standards, ISO 39001:2012 Road Traffic Safety

Management, which is an ISO standard for a management system (similar to ISO 9000) for road traffic safety.

In Malaysia, road user behaviour is to some extent regulated. Speed limits are established nationally with a maximum speed of 110 km/h on expressways and 90 km/h on federal roads. Local authorities can set lower speed limits zones. The national drink driving law has the same BAC limit (0.08 g/dl) for all the population groups regardless of their experience or being commercial drivers. The fatality toll for drink-driving related crashes is estimated by WHO to be 23 per cent for urban areas by 2013. Likewise, there is a national motorcycle helmet law covering all the occupants and helmet standards; the wearing rate is over 92 per cent of all riders. The country seat-belt law is comprehensive for the rear seat occupants. However the wearing rate is 13 per cent for rear seats. It also lacks national regulations on child restraints. The use of hands-free mobile phones is permitted. A notable strength is the process for being a qualified driver. There is a penalty/demerit point system for driver licences. At a more fundamental level, there are concerns about the medium to low enforcement for all the national laws.

Finally, Malaysia has a strong record of research and authors working on road safety. This is comparable with countries such as Singapore.

2.6. Myanmar

Challenges

- Enacting laws for child restraints in cars and prohibition of mobile phone use while driving.
- Enhancing the enforcement of the national laws regulating road user behaviours.
- Strengthening policies oriented to ensure the level of skill of drivers due to expected increases of novice drivers.
- Improving the safety level of vehicles.

Myanmar is a low income country with a low human development score in the Southeast Asia region. Its population is about 51,486,253 inhabitants and 70 per cent of the population live in rural areas; Myanmar has one of the lowest population densities of the region. Myanmar's economy ranks ninth in the ASEAN region with a GDP – per capita (PPP)

of $4,345 (2013) and unemployment rate of 3.4 per cent (2010-2014 est.). The country has 676,578 sq. km of land with topographic features of lowland and mountains. Located in the tropical zone, Myanmar is hot and humid all year round with three seasons; the rainy (or monsoon) and dry and cold seasons. However, the Myanmar Himalayas are the only regions in Southeast Asia that features a subtropical climate, which has a cold winter with snow.

Myanmar has a road network of 151,298 km (in 2012) and a paved road length of 48 km per 100 sq. km of land area. Myanmar has 587 km of expressways. In general, the roads are considered moderately low in extent and efficiency by international standards. In 2015 Myanmar had 14.5 motor vehicles per 1,000 inhabitants (8.5 passenger cars per 1,000 inhabitants) and 9 motor vehicles per kilometre of road.

In 2015 there were an estimated 4233 road traffic fatalities in Myanmar, representing a loss of 0.5 per cent of GDP. Since 2006 the traffic deaths in Myanmar have showed a dramatic upward trend with males predominating (75 per cent). The road user groups affected by road traffic deaths were riders motorized 2- or 3-wheeled (23 per cent), pedestrians (26 per cent), drivers of 4-wheeled cars and light vehicle (13 per cent), passengers of 4-wheeled cars and light vehicles (13 per cent) and cyclists (9 per cent). In post-crash care, Myanmar lacks trained emergency medicine staff and $\leq$ 10 per cent of serious injured people are transported by emergency ambulances.

Myanmar's institutional capacity for road safety includes a lead national agency and a well-defined strategy funded partially in the national budget. In addition, the country has a fairly complete regulatory framework for formal safety audits for road constructions, and programme of regular inspections to existing roads. While, the country lacks policies promoting walking and cycling, it has national policies to invest in public transport and subnational policies to protect VRUs.

There are over 5.38 million (2015) vehicles in Myanmar, with motorized 2- and 3-wheelers making up the majority (85 per cent), followed by cars and 4-wheeled passenger cars (8.33 per cent), Trucks including light trucks and heavy trucks (4.43 per cent), buses (0.47 per cent), and other (1.77 per cent). The country has yet to comply with the UN World Forum on Harmonization of Vehicle Standards. However, with regard to the inclusion of front and rear seat-belts, the Ministry of Transport and Communication of Myanmar is working towards issuance of directive to install seat belt in for both in-use vehicles and newly imported

vehicles. On the other hand, the Global Status Report shows that Myanmar has a new car assessment programme for verifying vehicles standards.

In Myanmar, road user behaviour is to some extent regulated. Speed limits are established nationally with the maximum speed for highway is 100 km/h. A maximum speed of 48 km/h in urban areas, local authorities cannot set lower speed limits zones. The national drink driving law has the same BAC limit (0.07 g/dl) for all the population groups regardless of their experience or being commercial drivers. Likewise, there is a national motorcycle helmet law covering all the occupants and helmet standards; the wearing rate is between 48-51 per cent of all riders. In order to further improve road safety in the country, laws relating to seat belt, child restraints, and anti-mobile phone while driving had been modified and released in 2015 while modification of the 1989 motor vehicle rules is underway.

Finally, the country has little road safety research and authors working on road safety in its territory.

2.7. Philippines

Challenges

- Creating a road safety body that will plan, implement, monitor and evaluate road safety initiatives supported by the national government and participated in by stakeholders.
- Earmarking funds for road safety projects, activities and programmes.
- Strengthening vehicle inspection and road worthiness.
- Enhancing driver's licensing system.
- Improving road crash data collection/information system.
- Strengthening the implementation of national laws on anti-drunk and drugged driving, speeding and use of helmets and seatbelts.
- Enacting laws relating to mobile phone use while driving and child restraints.
- Improving the accessibility of ambulances for seriously injured people.
- Providing facilities for vulnerable road users (NMT including pedestrians, bicyclists and motorcyclists).

The Philippines is a middle income country with a medium human development index. Its population in 2013 was about 98,400,000 inhabitants about 55 per cent of whom live in rural areas. The economy of the Philippines ranks sixth in the ASEAN region with a gross

national income per capita of USD 3,270 and an unemployment rate of 7.1 per cent. The country is mostly comprised of islands and has 298,170 sq. km of land with topographic features of lowland and mountains. Located in the tropical zone, the Philippines is hot and humid all year round with two seasons; the rainy (or monsoon) season and dry season.

The Philippines has a road network of about 270,000 km and a density of 91 km of road per 100 sq. km of land area. Eighty-six per cent of national roads are paved. In general, the roads are considered moderately extensive and efficient by international standards. In 2013, the country had about 78 motor vehicles per 1,000 inhabitants, 28 motor vehicles per kilometre of road, and about 9 cars per 1,000 inhabitants.

In 2013 there were an estimated 10,379 road traffic fatalities in the Philippines, or 10.5 fatalities per 100,000 inhabitants, accounting for 2.6 per cent of GDP lost. Road traffic incidents are distributed as follows (fatal: 7.8%; non-fatal: 45.1%; property damage: 47.1%). In post-crash care, the country ensures trained emergency medicine staff but at most only 10 per cent of injured people are transported by emergency ambulances. There are vital registration systems and the emergency rooms operate with injury surveillance systems.

The institutional capacity for road safety includes a lead national agency and a well-defined road safety strategy funded in the national budget. In addition, the country has a fairly complete regulatory framework for formal safety audits for road constructions, policies promoting walking and cycling and investment in public transport. At the subnational level there are policies to separate road users to protect VRUs. Nevertheless, the country is wanting in policies for inspections of existing road infrastructure.

The vehicle fleet in the Philippines comprised 7,690,638 units with a composition of motorized 2- and 3-wheelers (55.3 per cent), followed by cars and 4-wheeled light vehicles (39.2 per cent), heavy trucks (4.6 per cent) and buses (0.4 per cent). The country follows the UN World Forum on Harmonization of Vehicle Standards and regulates the inclusion of front and rear seat-belts. Currently, the Philippines does not have a new car assessment programme for verifying vehicle standards.

In the Philippines, road user behaviour is to some extent regulated. Speed limits are established nationally with a maximum speed of 40 km/h in urban areas, which may be lower in some locations. In the Philippines, the national anti-drunk and drugged driving law was strengthened in 2014, with a maximum BAC limit of 0.05 per cent for most drivers and a zero limit for drivers of commercial vehicles and motorcycles. The percentage of deaths involving

alcohol offenders is 1.4 per cent. Likewise, there is a national motorcycle helmet law covering all the occupants and helmet standards but no requirement to be fastened. In 2013, the wearing rate was between 87 per cent for drivers and 51 per cent of all riders. On a more positive note, the country has a comprehensive and well-enforced seat-belt law. However, it is in need of a national child restraint law and a national law banning use of mobile phones while driving. Likewise, the nation will also need to focus on strengthening its enforcement of the existing laws.

Finally, research activities on road safety in the country are still limited and are conducted mostly in major universities. In the University of the Philippines, a road safety Research Laboratory at the National Center for Transportation Studies takes the lead in research and academic work on road safety.

2.8. Singapore

Challenges

- Finding effective ways to separate road users to protect VRUs
- Consolidating national vehicle regulations
- Incorporating targets for the reduction of fatalities in the road strategy.

Singapore is a small high income city-state with a high human development index and economic stability. The country has the second smallest population (5,469,700 inhabitants) among the Southeast Asia region. Singapore's economy ranks first in the ASEAN region, with a GDP – per capita (PPP) of $71,318 (2014 est.) and an unemployment rate of 2.0 per cent (2014 est.). Located on the Malay Peninsula, the country constitutes 687 sq. km of urban low-land. Located in the tropical zone, Singapore is hot and humid all year round with two seasons; the rainy (or monsoon) and the dry season.

Singapore has the second shortest road network in the Southeast Asia region, with 3,496 km, ranking first in the region with the highest density of roads at 487 km of road per 100 sq. km of land area. Nearly 100 per cent of roads in Singapore are paved. Singapore has the second highest level of motorisation in the region, with 178 motor vehicles per 1,000 inhabitants and it is first in the region with 278 motor vehicles per kilometre of road (2014 est.). Singapore has 114 passenger cars per 1,000 inhabitants (2011 est.).

There were 155 (2014 est.) traffic fatalities in Singapore, about 80 per cent of whom were males. The estimated GDP loss due to traffic fatalities is not officially reported. In post-crash care, Singapore continues to benefit from trained emergency medical staff and availability of systems for vital registration. Likewise, more than 75 per cent of serious injured people are transported by ambulance.

Singapore has a lead national agency for road safety and a strategy funded partially by the national budget. Going forward, Singapore will need to continue strengthening its road safety strategy by establishing measurable targets. In addition, the country benefits from a regulatory framework for formal safety audits for road constructions, and a regime of regular inspections of existing roads. The country also promotes off-road commuting options such as walking and cycling. To achieve this, Singapore is working towards extending its cycling network island wide to 700 km by 2020. Regulations are being refined to prescribe maximum travelling speeds for bicycles and personal mobility devices (PMD) on pavements and cycling paths, as well as other rules on safe riding. These are complemented with sustained enforcement and public education through national campaigns to promote safe and harmonious sharing of paths with pedestrians.

The vehicle fleet in Singapore comprises 972,037 units, but its composition in terms of vehicle type is not officially reported. The country does not adhere to the UN World Forum on Harmonization of Vehicle Standards and no new car assessment programme is active. There are regulations for front and rear seat-belts in all new and imported cars.

In Singapore, road user behaviour is regulated. The maximum speed limit for urban road driving is 70 km/h, and local authorities can set lower speed limits. The prescribed limit in the national drink driving law is 35 µg of alcohol per 100 ml of breath or 80 mg of alcohol in 100 ml of blood (equivalent to 0.08 g/dl) for all the population groups regardless of their experience including commercial drivers. The fatality toll for drink driving related accidents is estimated at 7.7 per cent. This country has strong national motorcycle helmet laws covering passenger's use and helmet standards. Similarly, the national seat belt law covers all vehicle occupants and there is a national law for child restraints. While the use of hands-free mobile devices while driving is permitted, it is an offence to operate any function of a mobile communication device while holding the device and driving. In Singapore, there is a penalty/demerit point system for driver licences. Notable strengths include the enforcement for all the national laws which are undoubtedly the toughest in the region.

Finally, Singapore is the country with the most research on road safety in the ASEAN region with the highest number of authors affiliated to Singapore's institutions.

2.9. Thailand

Challenges

- Introducing widespread road safety auditing of new road construction and inspections of existing infrastructure.
- Enhancing enforcement of the national laws regulating road user behaviours.
- Improved emergency training of nurses to provide post-crash care.
- Introducing laws regarding child restraints.

Thailand is a middle income country with a high human development index in the Southeast Asia region. Its population is about 67,741,401 inhabitants of whom 48 per cent live in urban areas. Thailand's economy ranks fourth in the ASEAN region with a GDP – per capita (PPP) of $14,394 (2013) with an unemployment rate of 0.7 per cent (2010-2014 est.). The country has 510,890 sq. km of land with topographic features of low land, plains and mountains. Located in the tropical zone, the country is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season.

Thailand has a road network of 180,053 km (not including local roads) and a density of 35 km. of road per 100 sq. km of land area. The expressways network of Thailand stretches 450 km. In general, the roads are considered moderately extensive and efficient by international standards. Thailand has 172 motor vehicles per 1,000 inhabitants and 50 motor vehicles per kilometre of road (2011 est.). There are 74 passenger cars per 1,000 inhabitants (2011 est.).

There were an estimated 13,766 road traffic fatalities in Thailand in 2010, representing 3.0 per cent of GDP lost with males comprising 79 per cent of fatalities. Since 2007 the traffic deaths in Thailand have showed a downtrend. The road users more affected by road traffic deaths were riders of motorized 2- or 3-wheeled (74 per cent), pedestrians (8 per cent), passengers of 4-wheeled cars and light vehicles (7 per cent) and drivers of 4-wheeled cars and light vehicles (6 per cent). In post-crash care, Thailand has trained emergency medicine doctors but not nurses. Between 50-74 per cent of persons seriously injured in road crashes are transported by ambulance, which is relatively high by regional standards.

The institutional capacity for road safety has a lead national agency and strategy funded partially in the national budget. While some road safety audits and black spot treatments have been conducted, there is no regulatory framework to ensure formal safety audits for road constructions and regular inspections to existing roads. Likewise, there are no policies to promote walking and cycling or protect VRUs. However, public transport investment is promoted in Thailand.

The vehicle fleet in Thailand includes 28,484,829 units with a composition of motorized 2- and 3-wheelers (60.8 per cent) and followed by cars and 4-wheeled light vehicles (34.7 per cent), heavy trucks (2.9 per cent), buses (0.5 per cent), and other (1.1 per cent). The country follows the UN World Forum on Harmonization of Vehicle Standards, and regulates the inclusion of front and rear seat-belts. Nevertheless, Thailand does not have a new car assessment programme for verifying vehicle standards.

In Thailand, road user behaviour is to some extent regulated. Speed limits are established nationally with a maximum speed of 80 km/h in urban areas, local authorities can set lower speed limits zones. The national drink driving law has the same BAC limit (0.05 g/dl) for all the population groups regardless of their experience or being commercial drivers. The fatality toll for drink driving related accidents is 23 per cent. Moreover, there is a national motorcycle helmet law covering all the occupants and helmet standards; the wearing rate is 53 per cent of drivers and 19 per cent passengers. The country seat-belt law only covers front seat occupants, yet the wearing rate of drivers is 61 per cent for rear seats. There are no national regulations on child restraints, and the use of hands-free mobile phones is permitted. There is a penalty/demerit point system for driver licences. At a more fundamental level, there are concerns about the level of enforcement for all the national laws, particularly the drink driving law and helmet wearing.

Finally, Thailand has few research activities and authors working on road safety. This is comparable with countries such as Indonesia.

2.10. Viet Nam

Challenges

- Increasing capability in post-crash care in terms of ambulance accessibility.
- Extending the mandatory use of seat belts to rear seat occupants and regulating the use of child restraints.
- Enhancing the enforcement of the national drink driving law.
- Enhancing the enforcement of wearing approved motorcycle helmets.
- Implementing a penalty/demerit point system to influence the behaviours of drivers.

Viet Nam is a middle income country with a low human development score in the Southeast Asia region. Its population is about 93,421,835 inhabitants of whom 68 per cent live in rural areas. Viet Nam's economy ranks seventh in the ASEAN region with a GDP – per capita (PPP) of $5,294 (2013) and unemployment rate of 2.0 per cent (2010-2014 est.). The country has 310,070 sq. km of land with topographic features of plains, hilly, flat coast and mountains. Located in the tropical zone, Viet Nam is hot and humid all year round with two seasons; the rainy (or monsoon) and dry season. However, Northern Viet Nam, close to the Myanmar Himalayas, features a subtropical climate, which has a cold winter with snow.

Viet Nam has a road network of 280,000 km (including local roads) and a density of 48 km of road per 100 sq. km of land area. In general, the roads are considered moderately extensive and efficient by international standards. Viet Nam has 14 motor vehicles per 1,000 inhabitants and 7 motor vehicles per kilometre of road (2011 est.). The country has 14 passenger cars per 1,000 inhabitants are (2011 est.).

In 2015 there were an estimated 8,671 road traffic fatalities in Viet Nam, representing 2.45 per cent of GDP lost. It is the second consecutive year that traffic deaths in Viet Nam were under 9,000. In post-crash care, Viet Nam has a trained emergency medicine doctors and nurses. Among those seriously injured, 10 per cent are transported by ambulance.

The institutional capacity for road safety comprises a lead national agency and a strategy partially funded in the national budget. The national road safety strategy could be strengthened by the inclusion of fatality reduction targets. Viet Nam has a regulatory framework for formal safety audits for road constructions and regular inspections to existing

roads. Likewise, mobility is supported by policies to promote walking and cycling or protect VRUs. Public transport is sub-nationally promoted in Viet Nam.

The vehicle fleet in Viet Nam includes 46,792,091 units (the end of 2015) with a composition of motorized 2- and 3-wheelers (95 per cent), followed by cars and 4-wheeled light vehicles (2 per cent), heavy trucks (2 per cent), buses (0.3 per cent), and other (0.2 per cent). The country follows the UN World Forum on Harmonization of Vehicle Standards, and regulates the inclusion of front and rear seat-belts. However, Viet Nam continues without implementing a new car assessment programme for verifying vehicle standards.

In Viet Nam, road user behaviour is to some extent regulated. Speed limits are established nationally with a maximum speed of 50 km/h in urban areas, local authorities cannot set lower speed limits. The national drink driving law has BAC limit (0.05 g/dl) for motorcycle driver and zero for four wheeler's driver. The national motorcycle helmet law applies drivers and passengers and defines helmet standards; the wearing rate is 90 per cent of drivers and 75 per cent of passengers. The country seat-belt law only covers front seat occupants. There are no national regulations on child restraints and penalty/demerit point system for driver licences. The country banned the use of hands-free and hands-held mobile phones. A notable strength is the enforcement of the national regulation, especially the motorcycle helmet law but further effort is needed to ensure that the helmets worn comply with official standards.

Finally, Viet Nam has few research activities and authors working on road safety. This is comparable with countries such as Myanmar and Laos.

3. Country Progress in Terms of the Five Pillars of Road Safety

This section summarises the extent to which individual ASEAN countries have progressed in terms of the five pillars outlined in the UN Decade of Action (WHO 2013):

Pillar 1: Institutional framework,

Pillar 2: Safer roads and mobility,

Pillar 3: Safer vehicles,

Pillar 4: Safer road users and

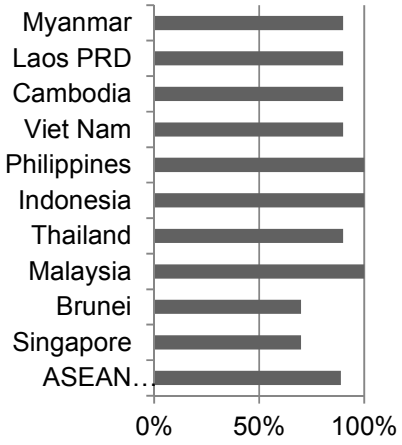
Pillar 5: Post-crash response.

To enable this comparison, a new index for measuring the extent of road safety maturity (RSM) was constructed from a numerical weighting based on the information provided in the WHO Global Status Report for 2015. For Pillar 3 the indicators which are presented in the 2013 report have been retained, rather than updating to the 2015 report, because the2015 indicators are less relevant for ASEAN member states. The methodology for developing the index is described in **Appendix 1**.

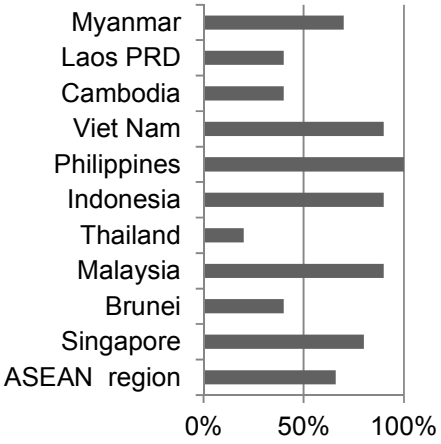
The value of the index per pillar ranges from 0 to 100%, and it takes into account whether there is a total, partial or non-implementation of the actions under that pillar. The values of the Road Safety Maturity Index for each country and ASEAN as a whole (overall and for each pillar) provide one approach to monitoring the outcomes of the Strategy. **These values should be reported to MRSSWG by each country on an annual basis and MRSSWG should report on progress to LTWG.**

The first pillar, 'Institutional framework', has an average maturity score of 89 per cent for the ASEAN region, with all of the ASEAN members having at least 70 per cent of the criteria fulfilled. The Philippines, Indonesia, and Malaysia have the best performance in the group with a complete fully funded institutional framework. The rest of the countries in the ASEAN region have a partially funded strategy and 20 per cent of them lack measurable targets. The region will benefit from an increase in global funding to ensure the sustainability of the road safety strategy.

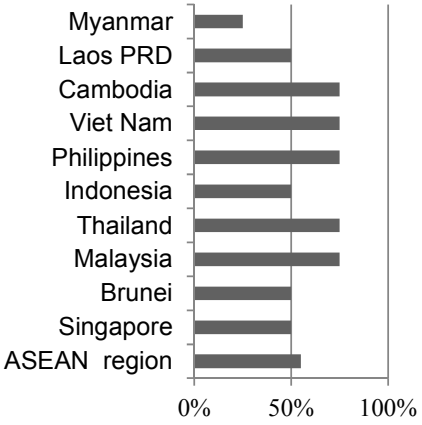
Pillar 1 - Road safety management



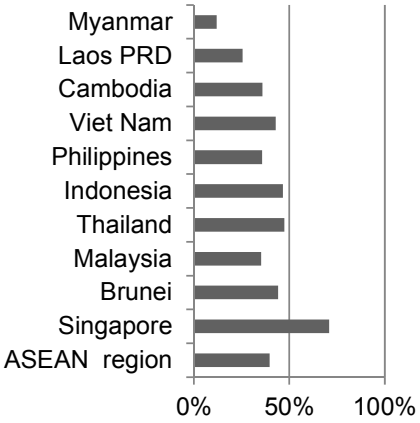
Pillar 2 - Safer roads and mobility



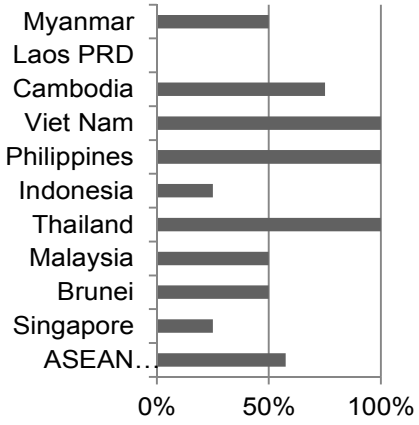
Pillar 3 - Safer Vehicles



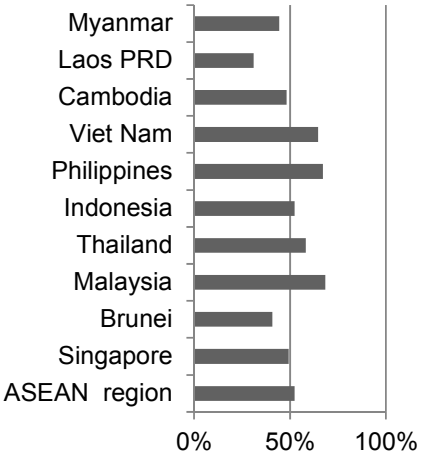
Pillar 4 - Safer Road Users



Pillar 5 - Post-crash Response



Overall



Pillar 2 'Safer roads and mobility' has an average maturity of 66 per cent for the ASEAN region. The development of the infrastructure projects in Southeast Asia incorporates auditing of new road constructions. Almost two-third of the countries have regular inspections for existing road networks, and another third conduct inspections in parts of the network. There is encouragement in the region for investment in public transport initiatives but only partial support for walking and cycling programmes. Half of the countries are yet to implement policies to separate vulnerable road users from other traffic. The development of safer roads needs further attention in Thailand, where there is no requirement for road safety auditing or programmes for separation of VRUs or promotion of walking and cycling.

The pillar 3 'Safer vehicles' has an average maturity of 60 per cent for the ASEAN region. In terms of vehicles, regulations for seat-belts in front and rear seats have not been introduced by some ASEAN members. Likewise, few have accepted the resolution of the UN World Forum on Harmonization of Vehicle Standards or have a new car assessment programme. This particularly affects low and middle income countries. These results must be interpreted with caution however, because regional initiatives have allowed sharing resources for safer vehicles. For example, the New Car Assessment Program for Southeast Asia (ASEAN NCAP) has operated since 2011.

Improving the safety of road users is the most challenging element for the ASEAN region. Pillar 4 'Safer Users' has an average maturity of 40 per cent for the ASEAN region. All the countries in the region have national laws relating to speeding, drink–driving and motorcycle helmets. The maximum speed limit on urban roads varies from 40 km to 90 km, and there is not flexibility in 60 per cent of the countries for setting lower speed limits. The self-rated level of enforcement of the national speed laws averages 5.2 on a 0 to 10 scale, with Thailand having the lowest level (3). The national drink driving-driving laws in the ASEAN region usually set the BAC limit between 0.07 and 0.08, irrespective of the licensing status of the driver or the type of vehicle driven. At the time of publication of the 2015 Global Status Report, Indonesia was the only country without clear BAC limits and breath-testing and/or police checkpoints. In the ASEAN region the average self-rated level of enforcement of the national drink driving law is 4.5. The most developed laws in the region relate to motorcycle helmets, with the highest self-rated level of enforcement overall (average of 7). National laws on seat-belt wearing exist in all the countries except Myanmar where laws have been proposed. The seat belt law applies to rear seat passengers in only 20 per cent of the countries

and the average level of enforcement is 5. Only one country has banned the use of hand-free mobile phones, even though recent evidence shows little difference in driver impairment between hand-held and hands-free phones. Only 40 per cent of the countries have child restraint legislation and the level of enforcement is low (4.6). Moreover, only the Philippines has a restriction on children sitting on front seat. Finally, 60 per cent of the counties have a drug-driving law.

At a regional level, 60% of the countries have 10% or less of seriously injured persons transported by ambulance. Post-crash care is concerning in all the ASEAN community with 60 per cent of the member states lacking emergency room based injury surveillance systems. Laos PDR lacks an emergency access telephone number(s). Furthermore, only 20% of member countries have data related to injury and disability.

4. General structure of the ASEAN Regional Road Safety Strategy

The ASEAN Regional Road Safety Strategy focuses on those aspects which are most relevant at the regional level and where a regional approach can supplement and facilitate the actions of individual countries. These aspects reflect the roles and responsibilities of the Multi-Sector Road Safety Special Working Group (MRSSWG). In the outline below, these aspects are presented according to the five pillars proposed to guide national road safety plans and activities during the Decade of Action for Road Safety. These pillars are not truly separate and interactions between them can bring about significant benefits. For example, most engineering measures need education to maximise correct use and therefore benefits. Therefore there is a need to work together to integrate the activities undertaken in the different pillars. Implementation of the strategy will benefit from the MRSSWG developing a bi-annual action plan with four programmes based upon its current roles and responsibilities as outlined in section 1.3

4.1. Road safety management

Overall goal:

Co-ordinated, well-informed and well-resourced actions

Strong and effective road safety management is a fundamental requirement for a successful strategy. Road safety management involves government organisations and national stakeholders from different sectors working together to identify problems and accepting responsibility for implementing solutions and measuring outcomes.

Good road safety management includes:

- Establishing a lead agency for road safety with authority to make decisions, manage resources and coordinate efforts across health, transport, education and enforcement sectors
- Empowering local government to set lower speed limits where needed (e.g. near schools and markets)
- Stronger relationships with health authorities to improve data about crashes and their outcomes.

- Developing systems to produce accurate counts of fatalities and, where possible serious injuries

- Monitoring and evaluation built into the strategy.
- Capacity building in road safety across police, transport, health, education. This may need to include increasing levels of professionalism and respect for enforcement to improve compliance and trust.

Specific approaches:

- Use the star rating system to measure and monitor the safety performance of each country and ASEAN as a whole on each of the following behavioural risk factors: helmet wearing, seat belt use, drink driving and speeding

  Given the different levels of sophistication of road safety data systems across ASEAN, a qualitative comparison of road safety performance will provide a feasible mechanism for monitoring progress. To date, star rating systems have been developed to measure the safety of both roads and new and used vehicles. In the RRSS, the safety performance of each country on each of the following behavioural risk factors: helmet wearing, seat belt use, drink driving and speeding, can also be monitored using a star rating system.

  Here is an example of how the star rating system might work for helmet wearing:

  1* if there is a programme of promotion or public education

  2* if there are mandatory standards

  3* if there are mandatory standards and mandatory helmet law

  4* if there is enforcement as well as mandatory standards and mandatory helmet law

  5* if the level of compliance is more than 95%

- Calculate the values of the Road Safety Maturity Index for each country and ASEAN as a whole on an annual basis to monitor the outcomes of the Strategy
- Investigate innovative funding mechanisms for road safety in ASEAN and resourcing the MRSSWG

- Explore the potential for developing partnerships with organisations that should be playing a role in improving road safety (e.g. vehicle manufacturers, large fleet operators) in order to provide resources for implementation of strategic actions.
- Consider existing models and build capacity by promoting the development of a professional development network for individuals working in road safety within ASEAN.
- Identify funding sources, develop work programmes and outputs for the ASEAN Road Safety Centre on behalf of all members.

4.2. Safer roads and mobility

Overall goal:

Safer roads and roadsides for all, not just car occupants

General considerations:

Selection of the most appropriate treatments to achieve safer roads and roadsides need to be based on a clear understanding of the contextual factors associated with its effectiveness where it was originally developed and a clear understanding of the contextual factors in the country where it will be applied. For example, pedestrian crossings may have been shown to be effective in some Western countries where there is an ingrained culture of respecting the rights of pedestrians, but they may not be (of themselves) useful in countries where pedestrians are considered to be of low status and therefore vehicles (whose occupants are considered to be of higher status) do not consider that they should stop for pedestrians. In such cases, physical treatments to slow traffic (either alone or in conjunction with pedestrian crossings) may be more effective in improving pedestrian safety.

Another consideration in selecting effective road and roadside safety initiatives is that some require ongoing resourcing (e.g. maintenance) that may not be feasible either because of unwillingness, cost or unavailability of technologies or skills. This is a significant issue for high-tech devices, such as speed feedback systems, but problems such as frequent interruptions to power supply can hinder the benefits of relatively simple technologies such as traffic signals, for instance.

Specific approaches:

- Encourage the use of iRAP for rating of the safety of major roads, both generally and specifically for vulnerable road users.
- Incorporating higher safety standards in any new road construction or upgrade projects
- Safe roadsides as well as travel lanes (particularly for pedestrian safety)
- Setting speed limits that consider both the physical characteristics of the roads and their function
- Designing and managing roads to promote safer road user behaviour (e.g. better provision for pedestrians, self-enforcing roads etc.)
- Separation of road users of very different kinetic energy e.g. motorcycle lanes

4.3. Safer vehicles

Overall goal:

Safer vehicles for both occupants and vulnerable road users

General considerations:

There is a need to focus on improving the safety of motorized 2- and 3-wheelers since these comprise bulk of motorized vehicles in most ASEAN countries.

Bus and truck safety are also important because these can contribute significantly to trauma of other road users.

Specific approaches:

- Promote crash safety ratings of cars with initial focus on fleet vehicles

  - both provision of information and as a basis for setting standards and/or prohibiting unsafe vehicles

  - need to consider pedestrian safety ratings

- Develop approaches for safer carriage of passengers on PTWs
- Improving the safety of paratransit vehicles while maintaining affordability
- Improving bus and truck safety

- implementing or strengthening standards

- developing or strengthening systems to ensure ongoing roadworthiness (which may include operator regulation)

- Improve safety of motorcycles by promoting adoption of ABS and ESC

4.4. Safer road users

Overall goal:

Road users who have the abilities and motivations to act in a safe manner who are protected by a system that is forgiving of errors made by them and others.

General considerations:

In many ASEAN countries, there is a migration of people from rural to urban areas who often have a lack of experience with motorized vehicles and low levels of education. This can contribute to unlicensed use of vehicles as well as lack of understanding of road rules.

The income disparity within some countries can hinder the effectiveness of fixed-level fines. An option which has been used in Scandinavia relates the magnitude of the fine to the income of the offender. However, this probably requires a well-developed system of recording income (e.g. a taxation system) that may not be available in most countries. Another option which is favoured by Dr Ray Shuey is to replace or supplement fines with penalties that are non-financial but serve to remove the benefit of the offence. For example, he proposes to punish vehicle overloading by requiring that the vehicle be immediately impounded or clamped until it is unloaded. Vehicle impoundment or clamping could also be applied to drink driving or speeding. While these changes remove the concern that a fixed fine may be too high for a low-income person and trivially low for a high-income person, they do not address the lower likelihood of applying the penalty to the high-income person. In the long term, there is a need to change the status and training of police and the attitudes of road users to enforcement.

While child restraints are a favoured form of protection for young children in developed countries, the reality that most children will not be transported by private car but by motorcycle or bus or some other paratransit vehicle means that implementing

requirements for child restraints may not be feasible in many ASEAN countries at this stage.

Specific approaches:

- Rating the performance of each country on each of the following risk factors: helmet wearing, seat belt use, child restraint use, drink driving and speeding (see description under Road Safety Management).
- Motorcycle helmets

  - Programmes (including social marketing and enforcement) to increase helmet wearing rates, particularly by passengers.

  - Enacting legislation that requires that any helmet worn must conform to standards

  - Improved effectiveness of enforcement.

- Drink driving

  - Provision of equipment for roadside alcohol testing

- Bus and truck drivers

  - Ensuring commercial drivers are licensed and fit to drive (including checking licences, alcohol testing, programmes to reduce fatigued driving)

  - Encouraging government and private companies to require audited safety standards in contracts for transport of people and goods

4.5. Post-crash response

Overall goal:

Minimising the long-term consequences of road traffic injury by prompt retrieval and timely and effective treatment and rehabilitation.

General considerations:

In the rural areas of some ASEAN countries, there is no formal system of retrieval of injured persons and this can lead to additional injuries being sustained while being transported to hospital. This is in addition to other negative consequences associated with the delay in

reaching definitive care. In contrast, the high level of traffic congestion in many large cities slows emergency responses to road traffic crashes.

Lack of money to pay for treatment is another important issue among some subgroups.

Specific approaches:

- Single, universal national emergency call number
- Nationwide ambulance system
- In crowded cities, consideration of use of two-wheelers to provide faster transport of ambulance personnel to crash sites to stabilise injured persons prior to use of traditional ambulances for transport to hospital.
- Encouraging bystanders to provide assistance where necessary.
- Development of road traffic injury insurance systems that provide funding for retrieval and treatments
- Development of formal accredited courses for training doctors and nurses in trauma care (perhaps ASEAN-wide initiative).

5. References

Central Intelligence Agency. (2013). The World Factbook 2013. Washington, DC: Author. Retrieved February 14, 2015, from www.cia.gov/library/publications/the-world-factbook

Human Development Report 2014 – Human development statistical annex. HDRO (Human Development Report Office) United Nations Development Programme

The Global Competitiveness Report 2014 - 2015. (nd). Retrieved February 15, 2015, from http://www.weforum.org/reports/global-competitiveness-report- 2014-2015

The World Bank. (2010). World development indicators (WDI). February 15, 2015, from The World Bank: http://data.worldbank.org/data-catalog/world-development-indicators/wdi-2014

WHO (2013). Global status report on road safety 2013: supporting a decade of action, World Health Organization.

WHO (2015). Global status report on road safety 2013: supporting a decade of action, World Health Organization.

6. Appendices

6.1. A proposed index of road safety maturity (RSM)

For this strategy, a new index for measuring road safety maturity (RSM) has been constructed from numerical weightings given to measurable factors presented for each of the pillars that guide national road safety plans and activities in WHO Global Road Safety Report 2015. These five pillars are road safety management, safer road and mobility, safer vehicles, safer road users and post-crash response. For Pillar 3, the factors from the 2013 report were retained because these were considered to be more generally applicable to ASEAN member states than the factors in the 2015 report.

The index is based on both a content analysis approach and a binary methodology (report/no report) with only the items which have been considered pertinent and not redundant. For instance, the use of random breath testing and/or police checkpoints in the national drink driving law is included in the enforcement index. The value of our index per pillar ranges from 0 to 100%, and it takes into account whether there is total, partial or non-implementation of certain actions. In addition, when possible, the self-rated level of enforcement is included. The indicators that are included in the calculation of the RSM index and the weightings and values assigned to these indicators are summarised in the table below.

Indicators	Weightings*	Value
Pillar 1. Road Safety Management	***100%***	
Lead Agency	20%	(1 if yes, 0 if no)
Funded in national Budget	20%	(1 if yes, 0 if no)
National road safety strategy	20%	(1 if yes, 0 if no)
Funding?	20%	(1 if fully 0.5 if partially, 0 if no)
Targets	20%	(1 if yes, 0 if no)
Pillar 2. Safer Road and Mobility	***100%***	
Formal audits required for new road construction	20%	(1 if yes, 0 if no)
Regular inspections of existing road infrastructure	20%	(1 if yes, 0.5 if partially, 0 if no)
Policies to promote walking or cycling	20%	(1 if yes, 0.5 if subnational, 0 if no)
Policies to encourage investment in public transport	20%	(1 if yes, 0.5 if subnational, 0 if no)
Policies to separate road users to protect VRUs	20%	(1 if yes, 0.5 if subnational, 0 if no)
Pillar 3. Safer Vehicles	***100%***	
UN World forum on harmonization of vehicle standards	25%	(1 if yes, 0 if no)
New car assessment programme	25%	(1 if yes, 0 if no)
Front and rear seat-belts required in all new cars	25%	(1 if yes, 0 if no)
Front and rear seat-belts required all imported cars	25%	(1 if yes, 0 if no)
Pillar 4. Safer Road Users	***100%***	
National speed limits	14.30%	(1 if yes, 0.5 if locals authorities cannot modify, 0 if no)*(Enforcement/10)
National drink driving–driving law	14.30%	(1 if yes, 0 if no)*(Enforcement/10)
National motorcycle helmet law	14.30%	(1 if includes the three criteria "drivers and passengers, fastened helmets and Standard", 0.66 if includes two criteria, 0.33 if includes one criterion, 0 if no)*(Enforcement/10)
National seat-belt law	14.30%	(1 if applies for front and rear seats, 0.5 if applies for front seats, 0 if no)*(Enforcement/10)
National child restraint law	14.30%	(1 if includes restriction on children sitting in front seat, 0.5 if does not include restriction on children sitting in front seat, 0 if no)*(Enforcement/10)
National law on mobile phones while driving	14.30%	(1 if includes hands-free and handheld mobile phone, 0.5 if includes either hands-free or handheld mobile phone, 0 if no)*(Enforcement/10)
National drug-driving law	14.30%	(1 if yes, 0 if no)*(Enforcement/10)
Pillar 5. Post-crash Response	***100%***	
Emergency Room based injury surveillance system	50.00%	(1 if yes, 0 if no)
Emergency access telephone number(s)	50.00%	(1 if yes, 0 if no)